XCOM: Photon cross-sections on a PC
version 1.2 of 9 May 1987

M.J. Berger, J.H. Hubbell
US National Bureau of Standards

Abstract: A computer program and data base are presented which can be used to calculate, with a personal computer, photon cross-sections for scattering, photoelectric absorption and pair production, as well as total attenuation coefficients, in any element, compound or mixture, at energies from 1 keV to 100 GeV. - A set of two diskettes is available upon request, costfree, from the IAEA Nuclear Data Section.

M.J. Berger and J.H. Hubbell
Center for Radiation Research
National Bureau of Standards
Gaithersburg, MD 20899

A computer program and data base for photon cross-sections is available on a set of two diskettes for use on a personal computer (many types). It provides the following data

* Cross-sections or attenuation coefficients for
- coherent and incoherent scattering,
- photo-electric absorption,
- pair production in the nuclear and electron field,
- total with and without coherent scattering,
* for all elements, compounds or mixtures,
* for photon energies from 1 keV to 100 GeV.

The program is started by keying in "XCOM". The rest is selfexplanatory. One can specify a material

- either by element: Z-number (e.g. 26) or element symbol (e.g. Fe)
- or chemical compound (e.g. CaWO4)
- or a mixture between either elements or compounds with specified fractional weights of the constituents.

The PC then produces cross-section tables for the requested material either on the printer ("PRN") or as a disk-file.

Detailed explanations are given in the file "XCOM.DOC".